

Device for storage containers for forming combined packs

The invention relates to a device for storage containers for forming combined packs and to the combined pack itself.

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A wide variety of different forms of storage container are known. Crop protection agents are often packed in storage containers. Crop protection agents may be mixtures containing a number of active ingredients. In order to allow a number of combinations of active ingredients, the crop protection agents are filled into individual storage containers and then loosely combined in outer packaging, e.g. in a folding box or packing case, to form a combined pack.

Single-part double-chamber canisters are known from the prior art. The disadvantage with these canisters, however, is that more packaging material is needed to produce them than is the case for two individual canisters. In addition, the choice of materials is restricted for such canisters. Moreover, special machines are required in order to fill crop protection agents into such double-chamber canisters. A further disadvantage of these canisters is that they do not allow flexible filling of the individual chambers.

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The object of the present invention is to provide a device which allows the fixed connection of a plurality of storage containers in the handle region, this resulting in the formation of a combined pack which cuts back on packaging and is easy to transport and carry. Furthermore, it is also intended for it to be possible for all the storage containers to be emptied simultaneously or in succession. In addition, the device is intended to ensure a more flexible choice of materials.

This object is achieved by the device according to the invention in that a connector is pushed through the handles of the storage containers and two or more storage containers are fixedly connected by virtue of at least one closure being plugged on.

One advantage of this plug-in device is the straightforward connection, which cuts back on packaging, of two or more storage containers in the handle region, thus

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providing for carrying capability and allowing the storage containers to be emptied simultaneously. It is also advantageous that the storage containers can be filled independently of one another and, following filling, can be combined as desired by the plug-in device.

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An advantageous configuration provides for storage containers with different filling volumes to be connected. A stand is used for this purpose. This stand also serves for transporting the combined packaging unit on the filling line during labeling or simultaneous filling.

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The plug-in device may advantageously consist of plastic, and is then preferably produced by injection molding. As an alternative, provision may also be made for the plug-in device to consist of other packaging materials, e.g. cardboard.

15 In a further embodiment, the connector can be connected to the closure by a screw thread.

The storage container may likewise advantageously consist of plastic, and is then advantageously produced by blow molding. As an alternative, it is also possible for
20 the storage container to consist of other packaging materials.

The plug-in device of the type described above is suitable, in particular, for packaging two different products in a combined pack. Such a combined pack is suitable, in particular, for packaging and transporting pourable materials. Possible
25 pourable materials are constituted by solid and liquid materials. These include, preferably and by way of example, solid crop protection agents, in particular the granules thereof.

The invention likewise relates to the combined pack which is formed by means of the
30 plug-in device.

The invention is explained in more detail, by way of example, hereinbelow with reference to the attached drawings, in which:

Figure 1 shows a preferred embodiment of the device according to the invention, in which the connector and the closure are connected,

5 Figure 1a shows a plan view of that side of the connector which is formed in the shape of the handles of the storage containers,

Figure 2 shows a preferred embodiment of the connector of the device according to the invention,

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Figure 3 shows a preferred embodiment of the closure of the device according to the invention,

Figure 4 shows a combined pack according to the invention,

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Figure 5 shows a combined pack according to the invention during transportation,

Figure 6 shows a combined pack according to the invention during the operation of emptying one storage container, and

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Figure 7 shows a combined pack according to the invention during simultaneous emptying of two storage containers.

The preferred embodiment of a device according to the invention which is illustrated in figure 1 shows the device 1 in the connected position. The device 1 comprises a
25 connector 2, which preferably consists of a highly transparent plastic and is produced by injection molding. On the right-hand side, it has a cavity 3, into which the closure 4 is introduced and fixedly connected to the connector 2 via the arresting means 5. The closure 4 preferably consists of a highly transparent plastic and is produced by
30 injection molding. As an alternative, the cavity 3 may contain a screw thread into which the closure 4 is screwed. The parts 4 and 6 may be hollow or in closed form, made of a plastic. The sides 1a and 1b of the device 1 are preferably formed in the shape of the handles of the storage containers.

Figure 1a shows a plan view of the side 1a or 1b of the device 1, which can be formed in each case in the shape of the handles of the storage containers.

- 5 Figure 2 shows the connector 2 with the left-hand part 6 and a wall 7, into which two holes 8 are introduced. To the right of the wall 7, the connector 2 has a cavity 3.

Figure 3 shows the closure 4 with two arresting means 5. The arresting means may, by way of example, be configured in the form of hooks.

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Figure 4 shows a combined pack 9 comprising two storage containers 10, each with a closure 11 and a handle 12, and the device 1. The closure 11 is preferably a screw-action closure.

- 15 Figure 5 shows a combined pack 9 comprising two storage containers 10, each with a closure 11 and a handle 12, and the device 1 in the carrying position. The closure 11 is preferably a screw-action closure.

- 20 Figure 6 shows a combined pack 9 comprising two storage containers 10, and the device 1, during the operation of emptying one storage container 10.

Figure 7 shows a combined pack 9 comprising two storage containers 10, and the device 1, during simultaneous emptying of the two storage containers 10.

- 25 The invention is not restricted to the embodiments illustrated. It is possible to provide for further configurations of the invention without departing from the basic idea.

List of designations

- 1 = Device
- 1a, 1b = Side of the device 1
- 5 2 = Connector
- 3 = Cavity
- 4 = Closure
- 5 = Arresting means
- 6 = Left-hand part of the connector
- 10 7 = Wall
- 8 = Holes
- 9 = Combined pack
- 10 = Storage container
- 11 = Screw-action closure
- 15 12 = Handle